

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method of determining the depletion of Al and Cr of a γ/γ' MCrAlY-coating ~~applied to~~ of a component after use in a high temperature environment, ~~the γ/γ' MCrAlY-coating exhibiting a non-equilibrium γ/γ' -microstructure at a temperature lower than the temperature during operation,~~ the method comprising:

(a) using a component having a γ/γ' MCrAlY-coating in a high-temperature environment in which the γ/γ' MCrAlY-coating exhibits an equilibrium γ/γ' -microstructure,

(b) cooling the component to a temperature lower than the operation temperature such that the γ/γ' MCrAlY-coating exhibits a non-equilibrium γ/γ' -microstructure at room temperature,

(a)(c) applying a defined annealing heat treatment to the γ/γ' MCrAlY-coated component to transform the non-equilibrium high temperature γ/γ' -microstructure into the equilibrium room temperature microstructure with a α -Cr phase,

(b)(d) measuring ~~qualitative~~ qualitatively impedance curves or the coating electrical conductivity and magnetic permeability of the MCrAlY-coating by means of a multi-frequency eddy current system, and

(e)(e) determining the Al and/or Cr depletion of the coating from the measured ~~qualitative~~ impedance curves or coating conductivity and permeability.

2. (Original) The method according to claim 1, wherein from the Al and/or Cr depletion of the coating the remaining life-time of the coating is determined.

3. (Previously Presented) The method according to claim 1, wherein the coating consists of (wt.-%) 25% Cr, 5.5% Al, 1% Ta, 2.6% Si, 0.5%Y, rest Ni and unavoidable impurities.

4. (Previously Presented) The method according to claim 1, wherein a transformation heat treatment at a temperature of 800° - 870° C for 16 to 24 hours is applied.

5. (Previously Presented) The method according to claim 1, wherein after the operation the coating is heat treated with a temperature above 1000°C for at least 2 hours with a subsequent controlled cooling rate of 2-10 K/min from the heat treatment temperature down to below 800°C to transform the microstructure.

6. (Previously Presented) The method according to claim 2, wherein the coating consists of (wt.-%) 25% Cr, 5.5% Al, 1% Ta, 2.6% Si, 0.5%Y, rest Ni and unavoidable impurities.

7. (Previously Presented) The method according to claim 2, wherein a transformation heat treatment at a temperature of 800° - 870° C for 16 to 24 hours is applied.

8. (Previously Presented) The method according to claim 3, wherein a transformation heat treatment at a temperature of 800° - 870° C for 16 to 24 hours is applied.

9. (Previously Presented) The method according to claim 2, wherein after the operation the coating is heat treated with a temperature above 1000°C for at least 2 hours with a subsequent controlled cooling rate of 2-10 K/min from the heat treatment temperature down to below 800°C to transform the microstructure.

10. (Previously Presented) The method according to claim 3, wherein after the operation the coating is heat treated with a temperature above 1000°C for at least 2 hours with a subsequent controlled cooling rate of 2-10 K/min from the heat treatment temperature down to below 800°C to transform the microstructure.

11. (Previously Presented) The method according to claim 4, wherein after the operation the coating is heat treated with a temperature above 1000°C for at least 2 hours with a subsequent controlled cooling rate of 2-10 K/min from the heat treatment temperature down to below 800°C to transform the microstructure.

12. (Currently Amended) The method according to claim 1, wherein the qualitative impedance curves of the coating are measured.

13. (Previously Presented) The method according to claim 1, wherein the electrical conductivity and magnetic permeability of the coating are measured.